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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/700,168	11/09/2000	Tetsujiro Kondo	450101-02398	2147

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EXAMINER
LE, BRIAN Q

ART UNIT	PAPER NUMBER
2623	6

DATE MAILED: 11/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	09/700,168	KONDO ET AL.
	Examiner	**Art Unit**
	Brian Q Le	2623

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-33_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-33_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _09 November 2000_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All b)☐ Some * c)☐ None of:

      1.☒ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____ .

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

    a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _3_ .

4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: .

Claim Objections

1.   Claim 26 is objected to because of the following informalities: The term "representative

sample data generated at the outset for each of said groups" is not clearly understood by one

skilled in the art. Appropriate correction is required.

Claim Rejections - 35 USC § 102

2.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on
> sale in this country, more than one year prior to the date of application for patent in the United States.

3.   Claims 1-23 and 26-33 are rejected under 35 U.S.C. 102(b) as being anticipated by Etoh

U.S. Patent No. 5,519,789.

Regarding claim 1, Etoh teaches a representative sample generating apparatus for

generating representative sample data of each of a plurality of groups, based on a plurality of

sample data initially classified into said plural groups (Abstract), said apparatus comprising:

Group feature data detection means for detecting group feature data representing feature

of sample data in each of said groups (clustering features/parameters of pixels into class)

(column 3, lines 20-25, 44-46),

Distance detection means for detecting the distances between all of the sample data and

the group feature data of each group (column 3, lines 45-47, 52-53, 56-58; column 4, lines 10-

13);

Re-classification means for re-classifying all of said sample data into said plural groups

based on said distances (maximum likelihood class selecting mean) (column 3, lines 51-53);

Convergence detection means (class data changing mean) for detecting whether or not the number of sample data classified into groups different from previous groups is converged as a result of re-classification by said re-classification means (column 3, lines 54-58); and

Decision means for repeating (judging mean of how to optimize distance between classes) the processing by said group feature data detection means, re-classification means and said convergence detection means until said convergence detection means has detected convergence, and for determining the group feature data of each group prevailing at the time of said convergence as detected by said convergence detection means as representative sample data of each group (column 5, lines 55-67).

Regarding claim 2, Etoh further teaches the representative sample generating apparatus wherein said group feature data detection means detects an average value (mean) of sample data in each group as said group feature data (mean vector) (column 4, lines 10-12, 49-67).

For claim 3, Etoh discloses the representative sample generating apparatus wherein said convergence detection means detects convergence when the number of sample data classified into a group different from the previous group is equal to or smaller than a pre-set number (column 7, lines 10-16).

Referring to claim 4, Etoh teaches the representative sample generating apparatus wherein said distance detection means detects the distance by calculating the correlation (the calculation of covariance and likelihood) of the group feature data of each group with respect to all of sample data (column 7, lines 35-67).

For claim 5, Etoh also discloses the representative sample generating apparatus wherein said sample data is image data (pixel data of an image) (column 12, lines 20-25).

As to claim 6, Etoh discloses the representative sample generating apparatus wherein said group feature data detection means generates group feature data according to the orientation (position/location/direction) of an image present by the image data (column 3, line 40; FIG. 2; column 9, lines 35-50; and column 4, lines 1-2).

Regarding claims 7-9, please refer to claim 1 for the explanation.

Regarding claims 10-11, please refer back to claims 2-3 respectively.

For claims 12-19, please refer to claim 1 for the explanation. In addition, Etoh also teaches a concept of recording medium (memory) (FIG. 1, box 102) and computer-controllable program (system control) (column 11, lines 1-4) as disclosed in claims 13, 16 and 19 and an apparatus (column 3, line 30) as disclosed in claims 14 and 17.

Regarding claim 20, Etoh teaches a coefficient data generating (column 4, lines 57-61) apparatus for generating apparatus for generating a coefficient data set adapted for generating sample feature data from new sample data not having sample feature data, based on a database in which there are pre-stored said sample feature data and sample data associated with said sample feature data (FIG. 1, 114, 115, 119; and column 3, lines 30-40), said apparatus comprising:

Classification means for classifying said sample data into a plurality of classes, based on the relation thereof with representative sample data which is set to each classification and which is associated with the sample feature data (column 3, lines 20-25, 44-46);

Means for generating, for each class, a normal equation having the values of the sample feature data and the sample data as previously known data and having coefficient data as unknown data (column 4, equation 4 and column 5, lines 13-67); and

Coefficient data generating means for solving said normal equation for each class to generate said coefficient data set for each class (column 4, lines 64-67 and column 5, lines 13-67).

For claim 21-22, please refer back to claim 20 for the explanation. In addition, Etoh also teaches a concept of recording medium (memory) (FIG. 1, box 102) and computer-controllable program (system control) (column 11, lines 1-4) as disclosed in claim 22.

For claim 23, please refer to claim 1, claim 3, and claims 12-19 respectively for further explanation.

Regarding claim 26, Etoh further teaches the sample feature data apparatus wherein said distance detection means detects a distance by calculating the correlation between input sample data and representative sample data generated at the outset for each of said groups (FIG. 5).

For claim 27, please refer back to claim 5.

For claim 28, please refer back to claim 26 for the explanation.

For claims 29-33, please refer back to claims 1,

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5.   Claims 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Etoh U.S. Patent No. 5,519,789 as applied to claim 23 above, and further in view of Kondo U.S. Patent No. 5,966,183.

For claim 24, Etoh further teaches a sample feature data generating wherein said sample

feature data generating means (Abstract) includes storage means for storing a coefficient data

(coded pixel value) (column 3, lines 63-64) set pre-set for each class (FIG. 1, element 114);

However, Etoh does not clearly indicates a prediction equation generation generating

means for generating a prediction equation based on the coefficient data set read out from said

storage means based on a class determined by said classification means; and

Data generating means for solving said prediction equation to generate said sample

feature data. Kondo teaches a classification method means for generating a prediction equation

(column 5, lines 35-45) on the coefficient data (FIG. 4, boxes 14, 13A, 13B, 13C, and 13D; FIG.

10, SP6) and generate data means for solving said prediction equation to generate said sample

feature data (FIG. 4, box 15; FIG. 10, SP7). Modifying Etoh's method of sample feature data

generation and classification according to Kondo would able to generate prediction equation to

predict coefficient data to further classify the data appropriately. This would improve processing

and therefore, it would have been obvious to one of the ordinary skill in the art to modify Etoh

according to Kondo.

Regarding to claim 25, Etoh does not teach the generation sample feature data having

consecutive values on a line interconnecting said that plural representative sample data. Kondo

teaches a concept of generating consecutive values on a line interconnecting said plural

representative sample data (FIG. 1, FIG. 8A-8C, FIG. 9). Modifying Etoh's method of sample

feature data generation and classification according to Kondo would able to interconnect sample

data together to show the pattern for further classification purpose. This would improve

processing and therefore, it would have been obvious to one of the ordinary skill in the art to

modify Etoh according to Kondo.

CONCLUSION

6.   The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure.

The following patents are cited to further show the state of the art with respect to data

sample generation and classification:

U.S. Pat. No. 5,187,751 to Tanaka, teaches clustering system for optical character reader.

U.S. Pat. No. 5,479,570 to Imagawa, teaches learning and recognition machine.

U.S. Pat. No. 5,621,858 to Stork, teaches neural network and visual speech recognition

system training method.

U.S. Pat. No. 5,838,816 to Holmberg, teaches pattern recognition system providing

automated techniques for training classifiers for non-stationary elements.

U.S. Pat. No. 5,754,676 to Komiya, teaches image classification apparatus.

U.S. Pat. No. 5,329,596 to Sakou, teaches automatic clustering method.

U.S. Pat. No. 5,287,275 to Kimura, teaches image recognition apparatus and method for

recognizing a pattern within an image.

U.S. Pat. No. 5,187,751 to Tanaka, teaches clustering system for optical character reader.

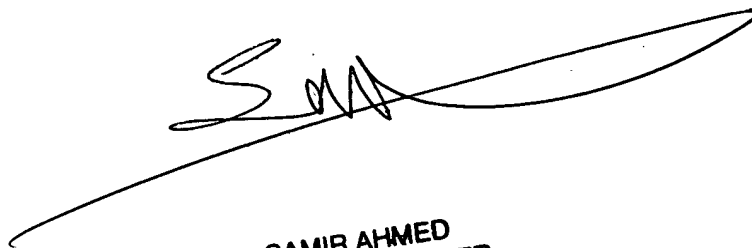U.S. Pat. No. 6,064,769 to Nakao, teaches character extraction and classification.

7.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Brian Q Le whose telephone number is 703-305-5083. The

examiner can normally be reached on 8:30 A.M - 5:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Amelia Au can be reached on 703-308-6604. The fax phone numbers for the

organization where this application or proceeding is assigned are 703-872-9306 for regular

communications and 703-872-9306 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding

should be directed to TC Customer Service whose telephone number is 703-306-0377.

BL
November 13, 2003

SAMIR AHMED
PRIMARY EXAMINER